

Environmental Assessment Checklist

Project Name: Hogan Ridge & Cole Creek Timber Sales & Red Lodge Mtn Rx Burn

Proposed Implementation Date: January 2022

Proponent: Southern Land Office, Montana DNRC

County: Carbon

Type and Purpose of Action

Description of Proposed Action:

The Southern Land Office of the Montana Department of Natural Resources and Conservation (DNRC) is proposing the Hogan Ridge & Cole Creek Timber Sales & the prescribed fire with the Red Lodge Forest Restoration Project. The project is located 4 miles northwest of Red Lodge, Montana (refer to Attachments vicinity map A-1 and project map A-2) and includes the following sections:

Beneficiary Timber Sale MSU - Morrill	S08, T07 S, R19 E - Hogan Ridge TS	180 Total Acres	145 Treated Acres
State Industrial School MSU - Morrill	S11, T07 S, R19 E - Cole Creek TS S12, T07 S, R19 E - Cole Creek TS		
Beneficiary Prescribed Fire State Industrial School MSU - Morrill	S07, T07 S, R20 E S11, T07 S, R19 E S12, T07 S, R19 E	818 Total Acres	818 Treated Acres

Objectives of the project include:

Primary objectives of the proposed projects are:

- Generate revenue for the MSU Morrill and State Industrial School Trusts
- Manage the forest to improve health, productivity, and biodiversity.
- Improve the stand health and vigor by removing dead and dying trees.
- Promote Aspen regeneration and restoration and thus enhancing wildlife habitat.
- Reduce the forest fuel loading and the probability of a stand replacement fire.

Secondary objectives with the Red Lodge Forest Restoration Project grant funded prescribed fire of the project in sections 11, 12 and 7 include:

- Improve forage availability, range productivity and habitat for livestock and wildlife.
- Reverse coniferous encroachment on meadows, open grassland and aspen stands throughout the section.
- Promote Aspen regeneration and restoration and thus enhancing wildlife habitat.
- Create a fire resilient landscape.

Proposed activities include:

Action	Quantity
Proposed Harvest Activities	# Acres
Clearcut	45
Seed Tree	100
Shelterwood	
Selection	
Old Growth Maintenance/Restoration	
Commercial Thinning	
Salvage	
Total Treatment Acres	
Proposed Forest Improvement Treatment	# Acres
Pre-commercial Thinning	
Site preparation/scarification	
Planting	
Proposed Road Activities	# Miles
New permanent road construction	0
New temporary road construction	0
Road maintenance	11.27
Road reconstruction	
Road abandoned	
Road reclaimed	
Other Activities	
Prescribed Fire	818

Duration of Activities:	3 years
Implementation Period:	December 2021– December 2024

The lands involved in this proposed project are held in trust by the State of Montana. (Enabling Act of February 22, 1889; 1972 Montana Constitution, Article X, Section 11). The Board of Land Commissioners and the DNRC are required by law to administer these trust lands to produce the largest measure of reasonable and legitimate return over the long run for the beneficiary institutions (Section 77-1-202, MCA).

The DNRC would manage lands involved in this project in accordance with:

- The State Forest Land Management Plan (DNRC 1996),
- Administrative Rules for Forest Management (ARM 36.11.401 through 471),
- and all other applicable state and federal laws.

Project Development

SCOPING:

- DATE:
 - March 19, 2021
- PUBLIC SCOPED:
 - The scoping notice was posted on the DNRC Website: [http://dnrc.mt.gov/public-interest/public-notices](http://dnrc.mt.gov/public-interest/public-<u>notices</u>)
 - Adjacent landowners, statewide scoping list, posted on DNRC website
- AGENCIES SCOPED:
 - FWP, USFS Red Lodge Ranger District, Tribes
- COMMENTS RECEIVED:
 - How many: 4 Public
 - Concerns: All in favor, (concerns were - if roads impacting Cowger Ranch, weeds, lack of permanent access from USFS from the West Side).
 - Three comments were received with phone calls one email, phone calls were conveyed with emails.

DNRC specialists were consulted, including Patrick Rennie Archeologist, Ross Baty Biologist, Tim Spoelma Silviculturist, Jeff Schmalenberg Soil and Hydrologist.

Internal and external issues and concerns were incorporated into project planning and design and will be implemented in associated contracts.

OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION, LIST OF PERMITS NEEDED:

(Conservation Easements, Army Corps of Engineers, road use permits, etc.)

- **Montana Department of Environmental Quality (DEQ)**- DNRC is classified as a major open burner by DEQ and is issued a permit from DEQ to conduct burning activities on state lands managed by DNRC. As a major open-burning permit holder, DNRC agrees to comply with the limitations and conditions of the permit.
- **Montana/Idaho Airshed Group**- The DNRC is a member of the Montana/Idaho Airshed Group which was formed to minimize or prevent smoke impacts while using fire to accomplish land management objectives and/or fuel hazard reduction (Montana/Idaho Airshed Group 2010). As a member, DNRC must submit a list of planned burns to the Airshed Group's Smoke Monitoring Unit describing the type of burn to be conducted, the size of the burn in acres, the estimated fuel loading in tons/acre, and the location and elevation of each burn site. The Smoke Monitoring Unit provides timely restriction messages by airshed. DNRC is required to abide by those restrictions and burn only when granted approval by the Smoke Monitoring Unit when forecasted conditions are conducive to good smoke dispersion.

ALTERNATIVES CONSIDERED:

No-Action Alternative: Logging and related forest improvement, road maintenance activities would not occur. The trust beneficiaries would not receive any revenue from timber harvest. No Rx burn and the benefits from the burn would not occur.

Action Alternative: DNRC will use existing roads with no new road construction to timber harvest 145 acres with ground-based tractor logging equipment with clearcut and seed tree prescriptions. DNRC will conduct an Rx prescribed Fire on approximately 818 acres according to an approved Rx burn plan.

Impacts on the Physical Environment

Evaluation of the impacts on the No-Action and Action Alternatives including direct, secondary, and cumulative impacts on the Physical Environment.

VEGETATION:

Vegetation Existing Conditions:

- Timber Stands where harvest units are located.
 - Hogan Ridge
 - These cutting units are dominated by lodgepole pine (average of 90% of basal area per acre) with remainder of the basal area composed of varying amounts of Douglas-fir, Engelmann spruce, subalpine fir, and quaking aspen. The basal area per acre in these units averages approximately 129 ft.²/acre, and there is an average of approximately 222 trees/acre greater than 6" d.b.h. Most trees are in the 6 to 16" size classes, with scattered larger trees ranging from 18" to 24" d.b.h. The average age of these units is between 90 and 115 years. Stand structure in these units is predominantly single-storied. Seedling and small sapling regeneration lodgepole pine, Douglas-fir, Engelmann spruce, and subalpine fir is present in each cutting unit. The fire regime in these cutting units is generally stand replacing, as most of these cutting units are on cool habitat types dominated by lodgepole pine. The desired future condition in these stands is lodgepole pine.
 - Cole Creek
 - These cutting units contain a mixture of lodgepole pine, Douglas-fir, and quaking aspen with lesser and scattered amounts of ponderosa pine and Engelmann spruce. The average age of these units is between 90 and 115 years, with scattered older ponderosa pine and Douglas-fir up to 165 years old. Seedling and small sapling regeneration composed primarily of Douglas-fir is present. The units are on moist Douglas-fir habitat types with mixed severity-to-stand replacing fire regimes. The desired future conditions in these units are Douglas-fir, lodgepole pine, and hardwoods (quaking aspen).
- Meadows and open areas:
 - Large open areas dominated with mature sage brush and grass cover most project area not covered in timber stands. The sage and grass ecosystem are the same as the timbered stands with fire exclusion for most of a century. Conifer encroachment into the meadows and grasslands is readily identifiable throughout the area. The grazing rangeland is degraded and underutilized because of the current condition and lack of disturbance with fire. These areas are also important for wildlife and would benefit from fire reintroduction to the ecosystem. These areas are important to DNRC Trust for grazing leases that raise annual revenue for the trust.
- Old Growth: There currently are no stands in the project area that meet DNRC's definition for old growth forest.
- Fire Hazard/Fuels: This project is within the Red Lodge WUI as designated in the Carbon County CWPP.
 - The Hogan Ridge stand Unit 1 is continuous, uninterrupted fuels from the USFS from the south. This is a very high fuel loading and is currently set for a stand replacement fire as the origin of the stand was 140 years ago.
 - The Cole Creek stand Unit 2 are mixed stands of conifer with aspen. These are moderate fuel loading and are mostly isolated from neighboring stands on private property that have recently

been select harvested. The Cole Creek Stand Unit 1 is high fuel loading of lodgepole pine and is set for a stand replacement fire. The adjacent stand to the south on private property is a continued lodge pole pine, high fuel volume stand but is due to be logged.

- Insects and Diseases: There are small outbreaks of pine bark beetle and Ips beetle. The lodge pole are climax stage and are dying and falling down. The face of the Beartooth Range are subject to frequent high wind events and evidence of blowdown exist throughout the stand.
- Sensitive/Rare Plants: None known
- Noxious Weeds: Houndstongue, Canada Thistle, Leafy Spurge

Treatment Objectives Hogan Ridge:

- Increase species diversity within cutting units while maintaining the DFC of lodgepole pine
- Increase age class diversity by regenerating a new age class of lodgepole pine
- Reduce stand susceptibility to mountain pine beetle
- Promote aspen regeneration where opportunities are available
- Generate revenue for the MSU Morrill trust

Treatment Objectives Cole Creek:

- Emulate mixed severity-to-stand replacing fire regimes through a combination of mechanized harvesting and prescribed broadcast burning
- Reduce conifer encroachment of aspen colonies and promote aspen regeneration through the use of mechanized harvesting and prescribed fire
- Maintain and enhance species diversity by regenerating quaking aspen, douglas-fir, lodgepole pine, and ponderosa pine
- Increase age class diversity
- Generate revenue for the trust beneficiaries (State Industrial School and MSU Morrill)

Prescribed Treatment - timber harvest units Hogan Ridge:

- Clearcut with reserves through species removal designation; no tree marking
- Remove all merchantable lodgepole pine; leave all Douglas-fir, Engelmann spruce and subalpine fir to achieve retention of at least 4 trees per acre
- Leave trees in clumps where possible to reduce potential for windthrow
- Topple incidental aspen trees as encountered within the cutting unit boundaries
- Protect advance douglas-fir regeneration
- Leave two snags and two snag recruits over 21" d.b.h. per acre (or largest size class if 21" trees are not available). If two snags per acre are not available, large live trees should be substituted as additional snag recruits so that the combination of snags and recruits is four per acre.

Prescribed Treatment - timber harvest units Cole Creek:

- Seed tree with reserves through species removal designation and diameter-limit harvesting; no tree marking
- Remove all merchantable lodgepole pine and engelmann spruce; leave all douglas-fir and ponderosa pine greater than or equal to 16" diameter and, if needed, smaller sizes of those species to achieve a minimum of 8 seed trees per acre
- Leave trees in clumps where possible to reduce potential for windthrow
- Topple aspen trees as encountered within the cutting unit boundaries

Harvest Method of timber units Hogan Ridge:

- Ground-based harvesting using whole-tree or tree-length skidding on dry, frozen, or snow-covered ground
- Utilize existing roads and skid trails that do not violate Best Management Practices (BMPs)
- Disperse skidding on flatter areas with high proportion of lodgepole pine to increase soil scarification and prepare a mineral seedbed for regeneration
- Return-skid fine material for nutrient retention requirements on primary trails and landings
- Protect advanced regen while skidding through the previously harvested unit down slope.

Harvest Method of timber units Cole Creek:

- Ground-based harvesting using whole-tree or tree-length skidding on dry, frozen, or snow-covered ground
- Utilize existing roads and skid trails that do not violate Best Management Practices (BMPs)
- Return-skid fine material for nutrient retention requirements on primary trails and landings

Hazard Forest Fuels Reduction of timber harvest activities Hogan Ridge and Cole Creek:

- Pile and burn slash in excess of coarse woody debris requirements with safe burning practices.

Site Preparation and Regeneration Hogan Ridge:

- Openings created by harvesting would provide opportunities for lodgepole pine to regenerate
- Skidding and piling would be expected to provide adequate scarification for regeneration.

Site Preparation and Regeneration Cole Creek:

- Broadcast burning following harvesting operations to prepare seedbed for natural regeneration and stimulate aspen suckering
- Openings created by harvesting would provide opportunities for lodgepole pine and quaking aspen to regenerate

Anticipated Future Treatments Hogan Ridge:

- Evaluate natural regeneration approximately five years following the completion of harvesting
- Evaluate the stand for precommercial thinning approximately 20 years following the completion of harvesting activities
- Monitor and treat noxious weeds as needed

Anticipated Future Treatments Cole Creek:

- Evaluate natural regeneration approximately five years following the completion of harvesting
- Evaluate the stand for precommercial thinning approximately 20 years following the completion of harvesting activities
- Monitor and treat noxious weeds as needed

Prescribe Fire Treatment of Cole Creek Logged units, meadow and open rangeland

- Restore and renew the grassland sage ecosystem with low intensity prescribed fire.
- Restore the aspen stands where conifer has encroached into the stand. We will attempt to broadcast burn through the logged units to propagate new aspen growth.

- Low intensity (late season, early spring) cool, broadcast prescribed fire. This will likely require multiple sessions and seasons to complete as opposed to one large fire.
- These activities will use existing roads and will required no new roads or lines to implement.

Harvest Unit	Habitat Group	Fire Regime	Current Cover Type	Age Class (years)	DFC	RX	Acres
1	Warm and dry (eastside)	Mixed-to-Stand Replacing	Lodgepole Pine	100-149	Lodgepole Pine	Clear Cutting	45 - Hogan Ridge
2	Moderately cool and moist (westside)	Mixed	Mixed Conifer	100-149	Douglas FirAspen	Seed Tree	91 – Cole Creek
1	Warm and Dry (westside)	Mixed-to-Stand Replacing	Lodgepole Pine	100-149	Lodgepole PineAspen	Clear Cutting	9 – Cole Creek

Vegetation	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Current Cover/DFCs	X				X				X					
Age Class	X				X				X					
Old Growth	X				X				X					
Fire/Fuels	X				X				X					
Insects/Disease	X				X				X					
Rare Plants	X				X				X					
Noxious Weeds	X				X				X					
Action														
Current Cover/DFCs			X										Yes	1
Age Class			X										Yes	1
Old Growth	X													
Fire/Fuels				X									Yes	2
Insects/Disease			X										Yes	3
Rare Plants	X													
Noxious Weeds			X										Yes	4

Comments:

1. Current Cover / DFCs will be altered. Lodge pole pine stands are even aged stands and will be clearcut for a new regeneration of even age lodge pole pine trees. Mixed conifer and aspen stands emulate mixed severity to stand replacing fire regimes, through a combination of seed tree prescription of mechanized harvesting and prescribed broadcast burning.
2. Fire/Fuels will be dramatically altered. The fuel loading in the lodgepole stand will be reduced to low for a decade or more and increase as the stand matures. The mixed stands have a desired outcome of

Aspen sprouting and thus will become a very low fuel load for decades until conifer encroachment eventually creeps back into the stands.

3. Insect and disease will be greatly altered as the stand will be transformed from a decadent climax stand to a young new vibrant stand.
4. Weeds – can become greatly increased if proper management is not followed. Disturbed activities and areas are always ripe for infestation of weeds.

Vegetation Mitigations:

1. Current cover/DCF's – Ensure that silvicultural prescriptions are correctly implemented during sale administration
2. Fire/fuels – Follow the guidelines for woody debris retention and ensure the rest of the slash is piled currently on the landings and burned when appropriate. If the harvest prescriptions are followed correctly the fuel loading will not be an issue and will get significantly reduced.
3. Insect and disease – Ensure that seed trees are not damaged during harvest activities and if damaged, trees are removed.
4. Weeds – Use BMP for weeds with timber harvesting. Plan to spray weeds for two years following burning of piles.

SOIL DISTURBANCE AND PRODUCTIVITY:

Soil Disturbance and Productivity Existing Conditions: The forest soils within the project area have many similarities with local variations in aspect, slope position, and depth to bedrock creating slight differences in physical properties that limit forest management activities. In general, soil depth is typically less 40 than inches before encountering impervious bedrock. Soils generally have a clay loam surface texture but grade to a sandy clay loam along ridges and convex features. Deep soils with elevated clay contents, particularly on north aspects, typically remain moist well into summer months. Due to the fine texture of these soils, pore spaces are small and matrix water is bound tightly by capillary forces resulting in moderate infiltration capacities and drainage attributes. The amount of coarse rock fragments within the soil profile varies throughout the project area but typically is within the range of 5-15% by volume. With increasing coarse rock fragments, the bearing strength of the material increases thus decreasing the limitation of road construction and risk of compaction. There is a moderate risk of erosion, displacement and compaction resulting from forest operations considering the soils in the project area.

Volumes of coarse and fine woody debris throughout the project area are variable and range from as little as 5 tons/acre to upwards of 15 tons/acre. This variability is dependent on habitat type, magnitude of insect and disease mortality and management histories. CWD and FWD are currently accumulating in trend within stands proposed for treatment. Due to the low level of precipitation and high seasonality of the project area, soils have a low level of productivity when compared to other regions in Montana. Forest management activities have the potential to modify both amounts and trends of recruitable material and in turn the long-term productivity of the soil.

Soil Disturbance and Productivity	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Physical Disturbance (Compaction and Displacement)	x				x				x				N/A	
Erosion	x				x				x				N/A	
Nutrient Cycling	x				x				x				N/A	

Soil Disturbance and Productivity	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
Slope Stability	x				x				x				N/A	
Soil Productivity	x				x				x				N/A	
Action														
Physical Disturbance (Compaction and Displacement)			x			x				x			Y	1
Erosion			x			x				x			Y	1
Nutrient Cycling		x				x				x			Y	2
Slope Stability	x				x				x					3
Soil Productivity		x				x				x			Y	1&2

Comments:

1. Physical disturbance from compaction and displacement would be expected on skid trails and landings. Past monitoring on DNRC timber sales from 1988 to 2010 has shown an average of 12.2 percent soil impacts across all parent materials. Sales harvested prior to 1990 exhibited impacts of 16.8 percent; sales harvest post-1990 showed impacts averaging 7.3 percent of the harvest area. This provides a strong relationship to the implementation of Forestry Best Management Practices (BMPs) and the Streamside Management Zone (SMZ) law. Detrimental soil impacts are expected on less than 20% of the harvest unit acres and soil productivity will be maintained.

2. Coarse and fine woody debris provide a crucial component in forested environments through nutrient cycling, microbial habitat, moisture retention and protection from mineral soil erosion (Harmon et al., 1986). As required in the DNRC Timber Sale Contract, both fine and coarse woody debris would be retained to reduce potential impacts to forest productivity. Although fine woody debris would be left on site for nutrient retention, a moderate reduction in annual fine material contribution would result from this alternative for up to 20 years.

3. No slope instability has been observed within the areas proposed for harvest.

Soil Mitigations:

1. Limit equipment operations to periods when soils are relatively dry, (less than 20 percent oven-dried weight), frozen, or snow-covered in order to minimize soil compaction and rutting and maintain drainage features. Check soil moisture conditions prior to equipment start-up.

2. The logger and sale administrator would agree to a skidding plan prior to equipment operations. Skid-trail planning would identify which main trails to use and how many additional trails are needed. Trails that do not comply with BMPs (i.e. trails in draw bottoms) would not be used unless impacts can be adequately mitigated. Regardless of use, these trails may be closed with additional drainage installed, where needed, or grass-seeded to stabilize the site and control erosion.

3. Tractor skidding should be limited to slopes of less than 45 percent unless the operation can be completed without causing excessive displacement or erosion. Based on site review, short, steep slopes may require a combination of mitigation measures, such as adverse skidding to a ridge or winchline, and skidding from more moderate slopes of less than 45 percent.

4. Keep skid trails to 20 percent or less of the harvest unit acreage. Provide for drainage in skid trails and roads concurrently with operations.

5. Slash disposal: Limit the combination of disturbance and scarification to 30 to 40 percent of the harvest units. No dozer piling on slopes over 35 percent; no excavator piling on slopes over 40 percent, unless the operation can be completed without causing excessive erosion. Consider lopping and scattering or jackpot burning on the steeper slopes. Consider disturbance incurred during skidding operations to, at least, partially provide scarification for regeneration.

6. Retain 10 tons of large woody debris and a feasible majority of all fine litter following harvesting operations. On units where whole tree harvesting is used, implement one of the following mitigations for nutrient cycling: 1) use in-woods processing equipment that leaves slash on site; 2) for whole-tree harvesting, return-skid slash and evenly distribute within the harvest area; or 3) cut tops from every third bundle of logs so that tops are dispersed as skidding progresses.

WATER QUALITY AND QUANTITY:

The project area is within the headwaters of Red Lodge Creek, specifically Cole and Hogan Creeks. These watersheds are approximately 40% forested with an average annual precipitation of approximately 22 inches. A very small portion of these watershed are owned by DNRC, no new road construction is proposed, small acreage of harvest is proposed with no SMZ harvest. As a result, the proposed action has a low potential for cumulative watershed effects.

Water Quality and Quantity Existing Conditions: This portion of the Yellowstone River Basin, including East Fork Red Lodge Creek, Hogan Creek, Thiel Creek and Harney Creek, is classified as B-1 by the DEQ, as stated in *ARM 17.30.609*. The water-quality standards for protecting beneficial uses in B-1 classified watersheds are located in *ARM 17.30.623*. Water in B-1 classified waterways is suitable for drinking, culinary and food processing purposes after conventional treatment, bathing, swimming and recreation, growth and propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers, and agricultural and industrial water supply. State water-quality regulations limit any increase in sediment above the naturally occurring concentration in water classified B-1. Naturally occurring means condition or materials present from runoff or percolation over which man has no control or from developed land where all reasonable land, soil, and water conservation practices have been applied (*ARM 17.30.602 [17]*). Reasonable land, soil, and water conservation practices include “methods, measures or practices that protect present and reasonably anticipated beneficial uses” (*ARM 17.30.602 [21]*). The State of Montana has adopted BMPs through its non-point source management plan as the principle means of meeting the *Water Quality Standards*.

None of the streams located within the proposed project water resource analysis areas are listed as water quality limited water bodies in the State of Montana 2020 303(d) list (DEQ 2020). No streamside management zone or riparian management zone harvest is proposed. No new road construction is proposed. Existing road stream crossings along the haul route currently met BMP’s and no sediment delivery is expected during hauling operations if standard BMP’s are applied.

Water Quality & Quantity	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Water Quality														
Water Quantity	x				x				x				N/A	
Action														
Water Quality		x				x			x				Y	1
Water Quantity	x				x				x				N/A	2

Comments:

1. Due to the harvest systems utilized, location of harvest units relative to stream channels, no new road construction, implementation of Forest Management BMP's and the low precipitation within the project area, there is a low risk of direct and secondary water quality impacts from the proposed actions. Considering these impacts in combination with existing cumulative effects, the proposed action will result in no increased cumulative effects over those moderate levels currently presenting in the watershed.
2. Forest stands are not likely to be a major influence on the hydrology and flow regimes of the streams draining the proposed timber sale area. The proposed harvest is not expected to substantially decrease the levels of canopy interception or evapotranspiration potential over that likely to occur in these watersheds under no action. The levels of harvest proposed are also well below those cumulative levels associated with detrimental increases in water yield. Due to these factors, no direct, secondary or cumulative impacts to water quantity are anticipated under the proposed action.

Water Quality & Quantity Mitigations:

- Best Management Practices for Forestry would be implemented and monitored for effectiveness concurrent with all forest management activities.
- Implementation of Montana Administrative Rules for Forest Management and Streamside Management Zones.
- Ephemeral draw crossings would be kept to a minimum and skidding down topographic convergences (draw bottoms) would be prohibited.
- Major skid trails would be grass seeded, closed with slash and debris and/or barriers, and adequate drainage provided.

WILDLIFE: The Project Area is situated along the northerly foothills portion of the Beartooth Face and is comprised of cool, dry forest types interspersed with open grass and shrub communities. Elevations range from 5,500 to 6,400 feet. Slopes range from 0 to 20% along fringe agricultural lands and pastures up to 65% on steeper mountainous terrain. The project area provides forested and non-forested habitats used by many terrestrial wildlife species, and it is used to varying degrees by moose, elk, mule deer, white-tailed deer, grizzly bears, black bears, mountain lions and wolves, as well as many other terrestrial species.

The project area is comprised of lodgepole pine stands or mixed-species stands containing at least 60 percent lodgepole pine and lesser amounts of Douglas-fir, Engelmann spruce, subalpine fir, and/or quaking aspen. A hardwood type is present that is comprised of pure stands of quaking aspen or aspen-mixed conifer stands with at least 50 percent aspen. Douglas-fir stands, those with greater than 60 percent Douglas-fir also occur on the project area. Minor amounts (<5%) of limber pine, juniper, and mixed conifer forests dominated by Engelmann spruce and subalpine fir are also present. Non-forested cover types in the project area include grasslands, meadows, sagebrush steppe, and shrub-dominated riparian areas. Fire has historically played an important role in shaping vegetation community types in the Beartooth Mountains and areas around Yellowstone National Park (Losensky 1997 -- Climatic Section M331a). Often, large scale stand-replacing fires were the predominant disturbance type in this area. The project area landscape is fragmented due to natural past disturbance events, past logging (DNRC Palisades Timber Sale 2013) and associated vegetation community types. Livestock grazing occurs on the project area and surrounding lands. Direct and indirect effects were considered within the two sections that comprise the project area. Cumulative effects were considered for project area and the 8 sections immediately surrounding each project area parcel (18 sections total).

No-Action: Under the No Action Alternative, none of the proposed road construction or timber sale activities would occur. Thus, no soil disturbance or manipulation of forest vegetation and habitats would occur from timber harvest activities for any species of wildlife. No direct, indirect or cumulative effects to wildlife or habitat would be expected under this alternative.

Action Alternative (see Wildlife table below): Under the Action Alternative impacts to wildlife would occur as depicted below in the chart and comments. The greatest threat to wildlife habitat in the Beartooth Mountain region is stand replacement fires that frequent the landscape. The effect of the stand replacement fires is to eliminate all biodiversity and cover for wildlife. Generally timber harvest and prescribed fire have been beneficial to wildlife resulting in a diverse landscape of habitats with early serial stage vegetation such as aspen regeneration. Generally, most wildlife populations such as elk and moose have prospered with the timber harvest of the last few years with prolific regeneration of aspen.

Wildlife	Impact												Can Impact be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
Threatened and Endangered Species														
Grizzly bear (Ursus arctos) Habitat: Recovery areas, security from human activity		X				X				X			Y	WL-1
Lynx (Felis lynx) Habitat: mosaics--dense sapling and old forest >5,000 ft. elev.		X				X				X			Y	WL-2
Sensitive Species														
Bald eagle (Haliaeetus leucocephalus) Habitat: Late-successional forest within 1 mile of open water	X				X				X				NA	WL-3
Black-backed woodpecker (Picoides arcticus) Habitat: Mature to old burned or beetle-infested forest	X				X				X				NA	WL-3
Wolverine (Gulo gulo) Habitat: high elevation areas that retain high snow levels in late spring	X				X				X				NA	WL-3
Black-tailed prairie dog (Cynomys ludoviscianus) Habitat: grasslands, short-grass prairie, sagebrush semi-desert	X				X				X				NA	WL-3
White-tailed prairie dog	X				X				X				NA	WL-3

Wildlife	Impact												Can Impact be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
(<i>Cynomys leucurus</i>) Habitat: mountain meadows, semi-desert grassland														
Peregrine falcon (<i>Falco peregrinus</i>) Habitat: Cliff features near open foraging areas and/or wetlands	X				X				X				NA	WL-3
Greater sage grouse (<i>Centrocercus urophasianus</i>) Habitat: sagebrush semi-desert	X				X				X				NA	WL-3
Fringed myotis (<i>Myotis thysanodes</i>) Habitat: low elevation ponderosa pine, Douglas-fir and riparian forest with diverse roost sites including outcrops, caves, mines		X				X				X			Y	WL-4
Hoary bat (<i>Lasiurus cinereus</i>) Habitat: coniferous and deciduous forests and roost on foliage in trees, under bark, in snags, bridges		X				X				X			Y	WL-4
Townsend's big-eared bat (<i>Plecotus townsendii</i>) Habitat: Caves, caverns, old mines		X				X				X			Y	WL-4
Northern Goshawk		X				X				X			Y	WL-5
Big Game Species														
Elk		X				X				X			Y	WL-6
Whitetail		X				X				X			Y	WL-6
Mule Deer		X				X				X			Y	WL-6
Moose		X				X				X			Y	WL-6

Comments:

WL-1 **Grizzly Bear** – The proposed project area lies 21 miles northeast of the Greater Yellowstone Ecosystem Grizzly Bear Recovery Area and immediately adjacent to the Non-Recovery Occupied Habitat boundary

delineated by Wittinger (2002). However, suitable habitat for grizzly bears is potentially present in the project area, and grizzly bear observations have been reported in the local area (R. Mule', DFWP R-5, Biologist, pers. comm. 2/29/12). No open roads are present on the project area, but restricted roads are present, which could pose some risk for bears. Recreational use and livestock grazing occurs within the project area and cumulative effects analysis area, which may influence use of these lands by grizzly bears. Approximately 5.0 miles on the Hogan Ridge Sale and 7.3 on the Cole Creek Sale of existing low-standard road (closed to public) currently exist the project area on state and private lands. Substantial amounts of cover would be removed on 145 acres reducing security cover from existing levels for two to three decades until affected conifer stands could regenerate. Public motorized access would remain restricted on all roads following project completion; however, occasional motorized grazing lessee access and non-motorized access would continue. Mechanized activities that would occur during harvest operations could displace bears, should they be present in the area. Given the short project duration, and small area of forest cover that would be affected, direct, indirect and cumulative effects to grizzly bears would be expected to be minor.

WL-2 Lynx -- Several of the current coniferous forest cover types within the project area are considered suitable for use by lynx. However, most typically do not contain high horizontal cover comprised of subalpine and spruce bows described by Squires et al. (2010). Also, the project area is comprised of low-lying foothill areas along a grassland/forest ecotone, which are areas not normally considered as preferred habitat for lynx. Considering this and the presence of several habitat attributes within the project area that are known to be important for lynx and snowshoe hares (e.g. dense overstory canopy, dense shrubs and downed logs), habitat in this area is likely best suited as travel habitat or matrix habitat (USFWS 2009) that would facilitate movement, linkage, and provide habitat for secondary prey species such as ruffed grouse, red squirrels, and other small mammals. Approximately 145 acres of suitable lynx habitat would be converted to temporary non-habitat should the proposed action be implemented. Following treatment, temporary non-habitat would likely require 10 to 30 years to reach suitable condition.

WL-3 Various Applicable Species -- This project area is either out of the range of the normal distribution for these species, suitable habitat is not present, or minimal potential for adverse effects would be anticipated. Thus, no direct, secondary, or cumulative effects would be anticipated.

WL-4 Bats --

WL-5 Northern Goshawk --

WL-6 Big Game -- Elk, mule deer, white-tailed deer and moose commonly use the project area. Under the proposed action, approximately 145 acres of mature forest would have tree density and associated crown cover considerably reduced by logging (up to approximately 90% reduction) which could influence local use of the area by big game for 4 to 5 decades. Other sub merchantable patches of trees and small patches of mature trees would be retained in areas outside of harvest units. Following completion of the proposed activities the roads would also be closed to motorized public use to mitigate the loss of security for deer and elk. Road access into all of the project area is controlled through private access and is not easily accessible by foot through the general public access. During periods of active logging, elk and deer could be temporarily displaced by the disturbance if they happen to be in the local area. Thus, some short-term risk associated with disturbance, and some long-term, albeit minor risk, to elk and deer could occur given the reduction in cover on the landscape. Given the location, small size of the affected area, type of the proposed activity, and cover attributes found on the project area and surrounding lands, low adverse direct, indirect and cumulative effects to deer and elk associated with cover removal on these habitats would be anticipated. Proposed activities would reduce cover and security that would be cumulative to that caused by large wildfires and logging on nearby private and federal lands.

Wildlife Mitigations:

- Retain a minimum of two snags and two snag recruitment trees per acre of the largest diameter class available. Cull live trees and cull snags would be retained where possible given human safety considerations.
- Retain leave trees in a clumped, natural fashion where possible to lessen tree losses to high wind and provide some limited screening structure.
- Retain 5 to 10 tons per acre of coarse woody debris greater than 3 inches in diameter.
- Intensive motorized activities associated with the project would be completed within two operating seasons if possible.
- Following project work restrict motorized public access on existing and newly constructed roads to provide security for wildlife. Reclaim all temporary roads in a manner that precludes use by all forms of motorized access consistent with the conditions found prior to the timber sales.
- Consult a DNRC biologist if a threatened or endangered species is encountered to determine if additional mitigations are needed.
- Provide visual screening where available in riparian and wetland management zones.
- Ensure that a maximum distance of 600 feet to screening cover is maintained in association with proposed harvest units.
- Food, garbage, and other attractants would be stored in a bear-resistant manner.
- If an active raptor nest is found, restrict all harvest activities within ¼ mile of the active nest from April 1 through August 15. Retain all trees within 100 feet of the nest tree and retain additional mature trees as possible within 100 to 200 feet of the nest. Deviations from the ¼ mile activity restriction may occur if a DNRC wildlife biologist deems that sufficient cover and/or topography are present in amounts sufficient to provide ample screening of the nest. Harvest activities include chainsaw operation and timber felling, skidding and ground-based yarding, road construction and maintenance, log loading, log processing, and log hauling. Development of additional site-specific measures may be necessary if a nest is located <1/4 mile from haul routes. Should such a situation arise, a DNRC wildlife biologist would develop a site-specific plan to minimize the exposure, frequency, and duration to disturbance associated with hauling, while considering site-specific cover conditions, terrain, the sensitivity phase of the nesting season, and stage of fledgling development.

AIR QUALITY:

Air Quality	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Smoke	x				x				x					
Dust	x				x				x					
Action														
Smoke		x				x				x			Yes	1
Dust		x				x				x			Yes	2

Comments:

- 1) Slash consisting of tree limbs, tops and other vegetative debris would be piled throughout the project area on landings during harvesting. Slash burning would introduce smoke into the local airshed but burning would only be done on days approved for burning by the Montana/Idaho Airshed Group and/or Montana Dept. of Environmental Quality. Given the small geographic scale of the project and that burning would only occur when conditions were suitable. Minor and temporary direct, indirect, and cumulative effects to air quality would be expected.
 - a. Rx prescribed fire will include in the Rx burn plan specific conditions for wind speed and direction, fuels conditions and etc. specifically for smoke management as to not impact Red Lodge community creating health and safety concerns. Rx burning would introduce smoke into the local airshed but burning would only be done on days approved for burning by the Montana/Idaho Airshed Group and/or Montana Dept. of Environmental Quality. Given the small geographic scale of the project and that burning would only occur when conditions were suitable. Minor and temporary direct, indirect, and cumulative effects to air quality would be expected.
- 2) Harvesting and hauling logs could create dust, which may affect local air quality. However, because dust would be localized to skid trails and haul roads, and operating seasons would be short in duration, effects to air quality as a result of dust generated during harvest activities are expected to be low.

Air Quality Mitigations: Burning within the project area would be short in duration and would be conducted when conditions favor good to excellent ventilation and smoke dispersion as determined by the Montana Department of Environmental Quality and the Montana/Idaho Airshed Group. DNRC, as a member of the Montana/Idaho Airshed Group, would burn only on approved days.

ARCHAEOLOGICAL SITES / AESTHETICS / DEMANDS ON ENVIRONMENTAL RESOURCES:

Will Alternative result in potential impacts to:	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Historical or Archaeological Sites	x				x				x					
Aesthetics	x				x				x					
Demands on Environmental Resources of Land, Water, or Energy	x				x				x					
Action														
Historical or Archaeological Sites	x				x				x					
Aesthetics	x				x				x					
Demands on Environmental Resources of Land, Water, or Energy	x				x				x					

Comments:

1. Comments from Palisades Timber Sale Final Environmental Assessment:

The DNRC archaeologist and staff conducted a Class III cultural and paleontological resources inventory of the areas of potential effect (APE) on state land. No Paleontological resources were identified, but 10 cultural resources were found to be within the project APE. Six cultural properties are historic irrigation ditches, one possible homestead, one is a possible homestead/sheep handling facility, and one is a possible seasonal hunting camp (ca. 1950's-1970's). Project related disturbances will not physically disturb the irrigation ditches or the two possible homesteads. In contrast, site 24CB2324 could be disturbed with timber harvest work, but because the site is considered to be ineligible for the National Register listing, there will be no effect to Heritage Properties.

A cultural and paleontologic resources inventory report has been prepared and is on file with the DNRC, Helena and the Montana State Historic Preservation Office (Helena).

Rennie, P.J.2013. A cultural and paleontologic Resources Inventory of the Palisades Timber Sale: Carbon County, Montana. Report prepared for the DNRC (Helena, MT). May 2013

Mitigations:

- If previously unknown cultural or paleontological materials are identified during project related activities, all work would cease until a professional assessment of such resources can be made.

OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA: Palisades Timber Sale Final Environmental Assessment Southern Land Office August 29, 2013

- US Forest Service Old Ranger Trail Easement. The USFS has requested an easement to re-establish the former ranger trail that crossed the Trust land and connected two areas of the Custer Gallatin National Forest. This project has not been scoped yet and would impact Section 8 that is included in this review. A separate environmental review would be completed by the DNRC once formal action commences on this request. This request is not expected to have any impact on the proposed Hogan Ridge timber sale or the prescribed fire component.
- The US Forest Service and DNRC are discussing an easement exchange. This would provide the DNRC with motorized access across USFS lands and would provide the USFS with motorized access across the Trust lands. The USFS would utilize existing roads within the Palisades block and this request would also require DNRC to conduct a separate environmental review. This proposal is not expected to have a significant impact on either timber sale proposed in this document or the prescribed fire component.
- The USFS Greater Red Lodge Area (GRLA) Project has been signed and published and is currently in litigation. DNRC SLO has issued a Temporary Road Use Easement for the Palisades road system for access and transportation of various parts of the GRLA project.
- The Red Lodge Mountain Restoration Project Prescribed Fire project will complete with approval per the DNRC policies a detailed prescribed fire burn plan.

Impacts on the Human Population

Evaluation of the impacts on the proposed action including direct, secondary, and cumulative impacts on the Human Population.

Will Alternative result in potential impacts to:	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Health and Human Safety	X				x				x					
Industrial, Commercial and Agricultural Activities and Production	X				x				x					
Quantity and Distribution of Employment	X				x				x					
Local Tax Base and Tax Revenues	X				x				x					
Demand for Government Services	X				x				x					
Access To and Quality of Recreational and Wilderness Activities	X				X				X					

Will Alternative result in potential impacts to:	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
Density and Distribution of population and housing	X				X				X					
Social Structures and Mores	X				X				X					
Cultural Uniqueness and Diversity	X				X				X					
Action														
Health and Human Safety		x				x				x			Yes	1
Industrial, Commercial and Agricultural Activities and Production	X													
Quantity and Distribution of Employment	X													
Local Tax Base and Tax Revenues	X													
Demand for Government Services	X													
Access To and Quality of Recreational and Wilderness Activities	X													
Density and Distribution of population and housing	X													
Social Structures and Mores	X													
Cultural Uniqueness and Diversity	x													

Comments:

1. Normal risks are involved with the operation of heavy equipment and log truck traffic on public roads.

Mitigations:

- Mitigations include signing of haul routes, driving at safe speeds, concentrating haul of materials on weekdays and for short durations, and restricting public use of open roads to conduct safe logging operations

Locally Adopted Environmental Plans and Goals: *List State, County, City, USFS, BLM, Tribal, and other zoning or management plans, and identify how they would affect this project.*

The Carbon County Community Wildfire Protection Plan calls for hazardous forest fuels mitigation work in the identified project area.

Other Appropriate Social and Economic Circumstances:

Costs, revenues and estimates of return are estimates intended for relative comparison of alternatives. They are not intended to be used as absolute estimates of return. The estimated stumpage is based on comparable sales analysis. This method compares recent sales to find a market value for stumpage. These sales have similar species, quality, average diameter, product mix, terrain, date of sale, distance from mills, road building and logging systems, terms of sale, or anything that could affect a buyer's willingness to pay.

No Action: The No Action alternative would not generate any return to the trust at this time.

Action: The timber harvest would generate additional revenue for the State Industrial School and MSU Morrill Trusts. The estimated return to the trust for the proposed harvest is \$58,000 based on an estimated harvest of 859,000 board feet, 5800 tons and an overall stumpage value of \$10 per ton. Costs, revenues, and estimates of return are estimates intended for relative comparison of alternatives, they are not intended to be used as absolute estimates of return.

References

DNRC 1996. State forest land management plan: final environmental impact statement (and appendixes). Montana Department of Natural Resources and Conservation, Forest Management Bureau, Missoula, Montana.

DNRC. 2010. Montana Department of Natural Resources and Conservation Forested State Trust Lands Habitat Conservation Plan: Final EIS, Volume II, Forest Management Bureau, Missoula, Montana.

Does the proposed action involve potential risks or adverse effects that are uncertain but extremely harmful if they were to occur?

No

Does the proposed action have impacts that are individually minor, but cumulatively significant or potentially significant?

No

Environmental Assessment Checklist Prepared By:

Name: Jeff Hermanns
Title: SLO Area Forester
Date: January 4, 2022

Finding

Alternative Selected

I have reviewed the environmental analysis and have selected the Action Alternative.

Significance of Potential Impacts

Upon review of the project and the analysis herein, I find that none of the project impacts are regarded as severe, enduring, geographically widespread, or frequent. Further, I find that the quantity and quality of the natural resources, including any that may be considered unique or fragile, will not be adversely affected to a significant degree. I find no precedent for the future actions that would cause significant impacts, and I find no conflict with local, state, or federal laws, requirement or formal plans. In summary, I find that adverse impacts would be avoided, controlled or mitigated by the design and implementation of the project to an extent that they are not significant.

Need for Further Environmental Analysis

☐

EIS

☐

More Detailed EA

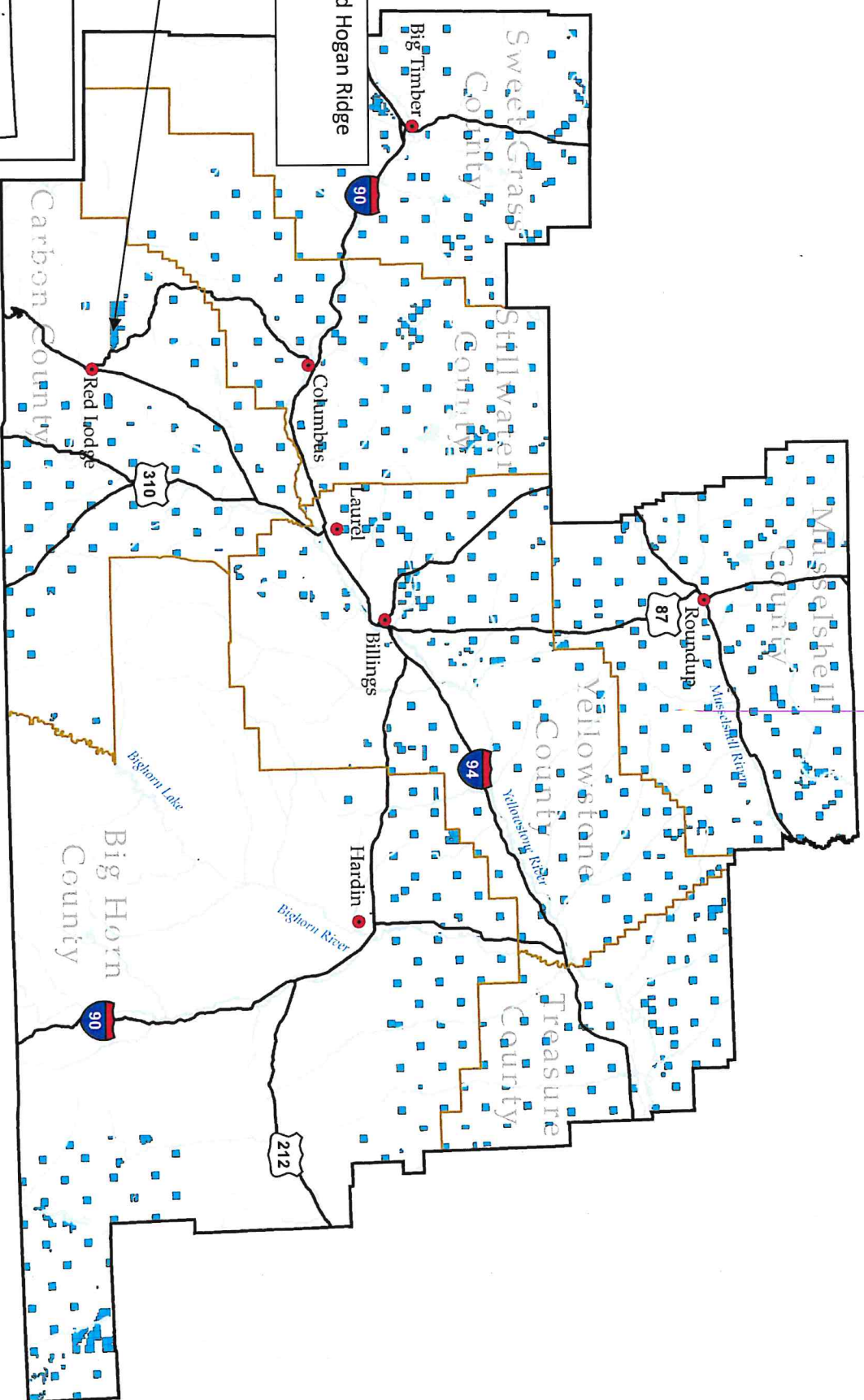
☒

No Further Analysis

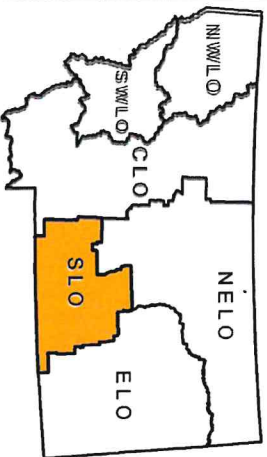
Environmental Assessment Checklist Approved By:

Name: Jeff Bolman
Title: Area Manager, Southern Land Office
Date: 4 January 2022
Signature: 

Map A-1 Cole Creek and Hogan Ridge Timber Sales VICINITY MAP SOUTHERN LAND OFFICE



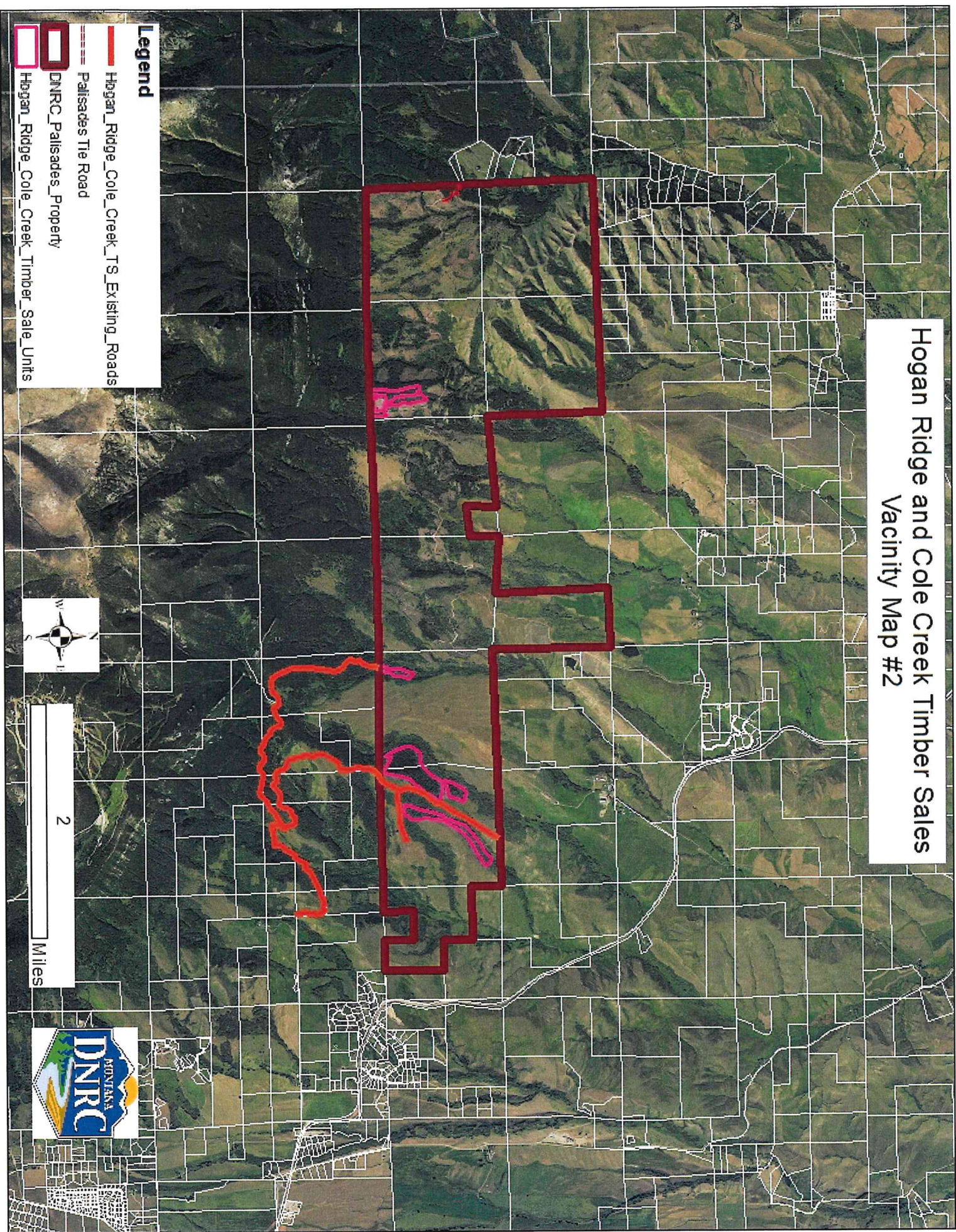
Cole Creek and Hogan Ridge
Timber Sales



- Towns
- County Border
- Major Roads
- Rivers
- Water Bodies
- State Trust Land




Produced by Montana Department of Natural Resources and Conservation 2013
Datum: NAD 1983 Montana State Plane

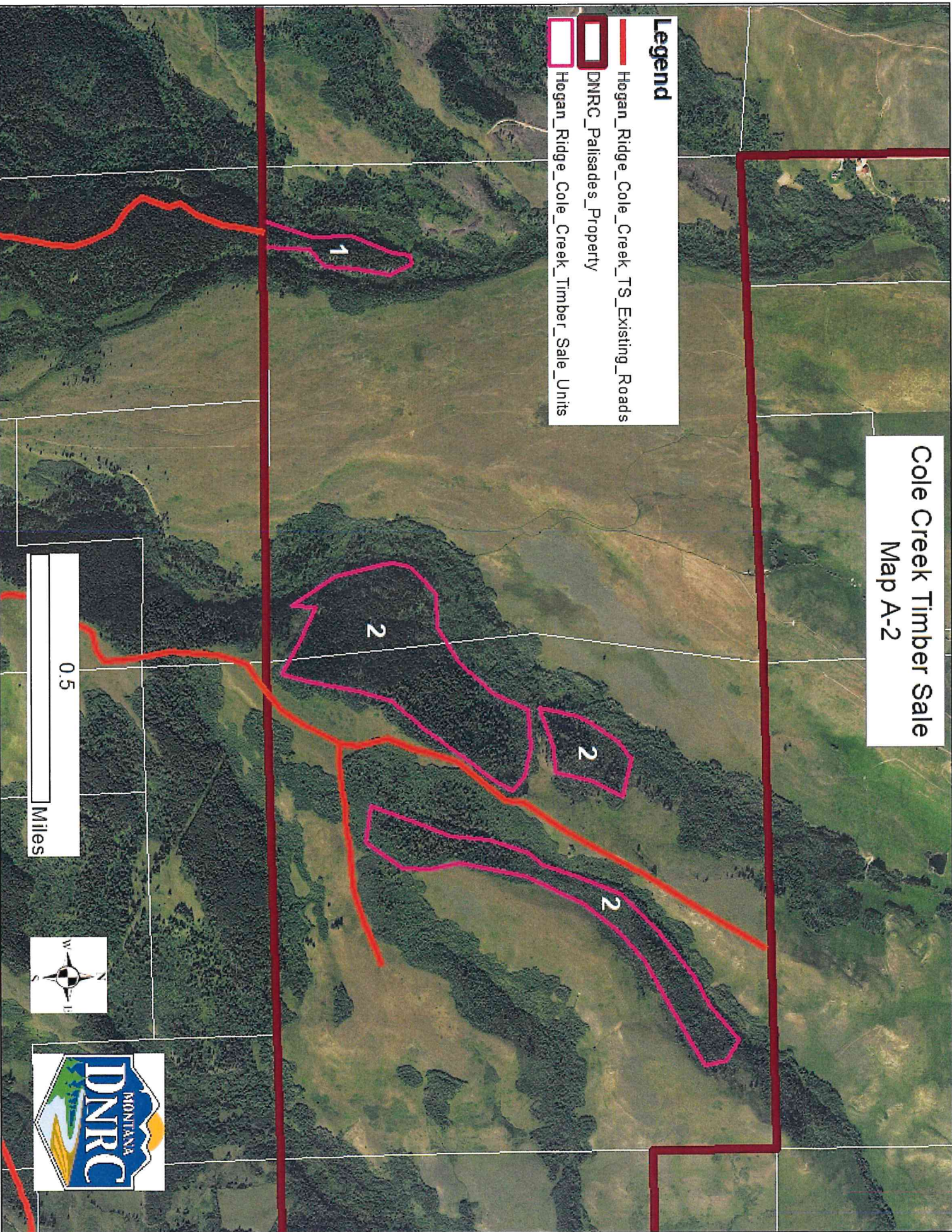
Hogan Ridge and Cole Creek Timber Sales Vicinity Map #2



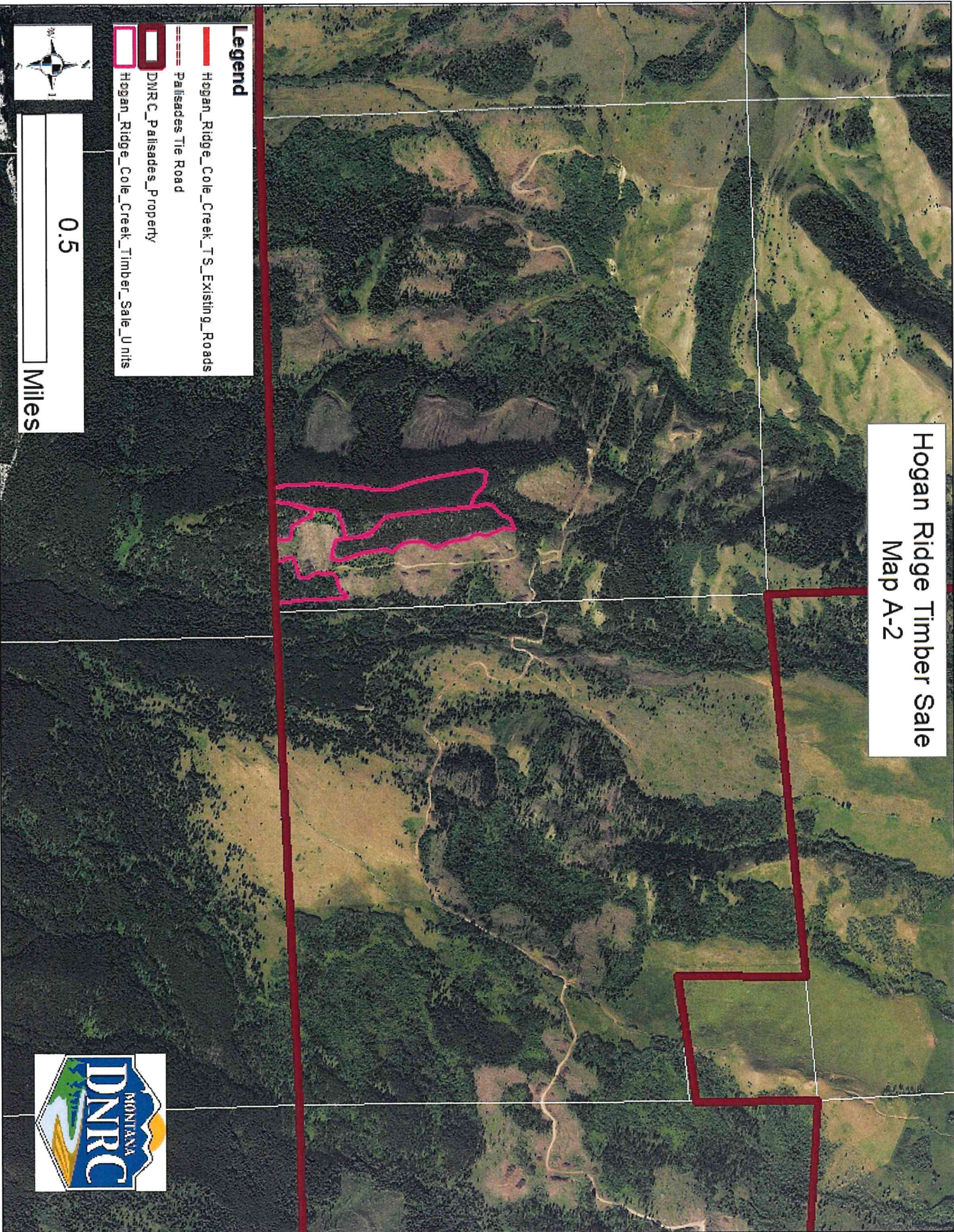
Cole Creek Timber Sale Map A-2

Legend

-  Hogan_Ridge_Cole_Creek_TS_Existing_Roads
-  DNRC_Palisades_Property
-  Hogan_Ridge_Cole_Creek_Timber_Sale_Units



Hogan Ridge Timber Sale Map A-2



Legend

- Hogan_Ridge_Cole_Creek_TS_Existing_Roads
- Palissades Tie Road
- DNR C_Palissades_Property
- Hogan_Ridge_Cole_Creek_Timber_Sale_Units






0.5
Miles



Red Lodge Mountain Forest Restoration Rx Burn DNRC Area Map A-3

Legend

-  Red Lodge Mountain Forest Restoration Project Prescribed Fire
-  Hogan_Ridge_Cole_Creek_TS_Existing_Roads
-  Hogan_Ridge_Cole_Creek_Timber_Sale_Units

